

# SEMICONDUCTORS

# INTERNATIONAL RECTIFIER

THE MOST EXTENSIVE LINE OF QUALITY RECTIFIERS AND  
DIODES AVAILABLE TO THE ELECTRONICS SERVICE DEALER.



RADIO, TV,  
AUDIO RECTIFIERS  
& DIODES

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INSTRUMENT  
RECTIFIERS

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## CROSS REFERENCE TO OTHER BRANDS

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PART NO.	IR NO.*	PART NO.	IR NO.*	PART NO.	IR NO.*	PART NO.	IR NO.*
<b>GENERAL ELECTRIC</b>		<b>I.T.T.-FEDERAL</b>		<b>RADIO RECEPTOR</b>		<b>SARKES TARZIAN</b>	
6GC1	DD04	2100S	J14C5	D122	J58B1	40H	10B4
6GD1	DD05	2101S	J14C8	D123	J58B5	40M	5MA4
6GX1	DD06	2102	J14C17	D124	J58B8	40S3P	25HB40
GE504	SD500	2103S	J29B5	D125	J58B17	40Y3P	70U40
<b>IRC</b>		2104S	J29B8	D126	J116B1	40T3P	45L40
D4	DD04	2105	J29B17	D127	J116B5	40V3P	45L40
D5	DD05	2118S	J58B5	D128	J116B8	50-75	T065-075
D6	DD06	2108	J58B17	D129	J116B17	50H	10B5
D7	DD07	2109S	J116B5	D130	J116B04	50M	5MA5
<b>I.T.T.-FEDERAL</b>		2110S	J116B8	D131	J116B1	60H	10B6
10	J14C5	2111	J116B17	D132	J116B1	60M	5MA6
11	J14C5	2112	J116B1	D133	J116B5	100-150	T075/150
12	J14C8	2113S	J116B5	D134	J116B8	200-250	T200/300
13	J14C8	2114S	J116B8	D135	J116B17	300-500	T450/500
14	J14C17	2115	J135B04	D136	J135B04	D10	J14C1
15	J14C17	2116	J135B1	D137	J135B1	D11	J14C5
210	J29B1	2117S	J135B8	D138	J135B1	D12	J14C8
211	J29B5	K1615	DD04	D139	J135B5	D13	J14C8
212	J29B5	K1616	DD05	D140	J135B8	D15	J14C17
213	J29B8	K1617	DD06	D141	J135B17	D17	J29B5
214	J29B8	M4042	JD4346B	RR65 - 75	T065/075	D18	J29B5
215	J29B17	M4043	JD4346B	RR150	T075/150	D19	J29B8
216	J29B17	M4202	JD116K	RR200	T200/300	D20	J29B8
310	J58B5	M4203	JD117K	RR350 - 400	T350/400	D22	J29B17
311	J58B5	PE504	5A4	RR500	T450/500	D24	J58B1
312	J58B8	PE506	5A6	<b>RAYTHEON</b>		D25	J58B5
313	J58B8	RE504	SD500	1N1095	5A4	D26	J116B8
314	J58B17	<b>MALLORY</b>		1N1763	SD500	D27	J58B8
315	J58B17	1N536/7	SD91	1N1764	SD95	D29	J58B17
410	J58B5	1N538	SD92	RD250	5A4	D31	J58B1
412	J58B8	1N539	SD93	<b>RCA</b>		D32	J58B5
413	J58B8	1N540	SD94 - SD500	<b>SARKES TARZIAN</b>		D34	J58B8
414	J58B17	1N1095	SD95	1N1763	SD500	D36	J58B17
415	J58B17	1N1096	SD96	<b>SARKES TARZIAN</b>		D38	J116B04
510	J116B5	1N2069	5A2	2F4	5A4	D39	J116B1
511	J116B5	1N2070	5A4	5T3P	45L5	D40	J116B5
512	J116B8	1N2071	5A6	5VAP	45L5	D41	J116B5
513	J116B8	1N2094	5E4	5W3N40	45LR40	D43	J116B8
514	J116B17	A100	5A2	5W3P10	45L10	D44	J116B17
515	J116B17	A200	5A2	5W3P20	45L20	D45	J135B04
710	J116B1	A300	5A4	5W3P30	45L30	D46	J135B1
711	J116B1	A400	5A4	5W3P40	45L40	D47	J135B1
712	J116B5	A500	5A6	5V3P	45L5	D48	J135B5
713	J116B5	A600	5A6	5WAP	70U5	D50	J135B8
714	J116B8	<b>RADIO RECEPTOR</b>		5XAP	70U5	D51	J135B17
715	J116B8	C301 - 302	J14C1	5X3P	70U5	D52	J29B1
716	J116B17	C305 - 306	J14C8	5Y3P	70U5	F2	5A2
810	J135B04	C308	J14C17	10M	5M2	F4	5A4
811	J135B1	C314 - 315	J29B1	10S3P	25HB10	F6	5A6
812	J135B1	C318 - 319	J29B8	10T3P	45L10	M150	1MA4
813	J135B5	C321	J29B17	10VAP	45L10	M500	5MA4
814	J135B8	C344 - 345	J58B8	10V3P	45L10	S5011A	ST4
815	J135B8	C367	J116B1	10WAP	70U10	S5017	ST3
816	J135B8	C370 - 371	J116B8	10XAP	70U10	S5018	ST2
817	J135B17	C373	J116B17	10Y3P	70U10	S5019	ST2A
1001	Q1H	C380	J135B1	20SAP	25H20	S5130	ST7A
1001A	T075/150	C383 - 384	J135B8	20H	10B2	S5162	ST2A
1002A	T065/075	C386	J135B17	20V3P	45L20	S5207	ST1
1003A	T065/075	D101	J14C04	20WAP	70U20	S5251	ST14
1004A	T075/150	D102	J14C1	20XAP	70U20	S5347	ST13
1005A	T075/150	D103	J14C5	20X3P	70U20	<b>TEXAS INSTRUMENT</b>	
1006A	T200/300	D104	J14C8	20Y3P	70U20	1N2069	5A2
1015	A1B	D105	J14C17	30H	10B3	1N2070	5A4
1016	B1B	D108	J29B04	30M	5MA4	1N2071	5A6
1017	C1B	D109	J29B1	30XAP	70U30	<b>WESTINGHOUSE</b>	
1234AH	T065/075	D110	J29B5	30X3P	70U30	319A	45L5
1235AH	T075/150	D111	J29B8	30SAP	25H30	319B	45L10
1237AH	T450/500	D112	J29B17	30T3P	45L30	319D	45L20
1241AH	T350/400	D115	J58B04	30VAP	45L30	319E	45L25
1242AH	T550/650	D116	J58B1	30V3P	45L30	319F	45L30
2026S	J58B5	D117	J58B5	30WAP	70U30	319H	45L40
2033S	J58B8	D118	J58B8	30Y3P	70U30	319K	45L50
2036	J135B1	D119	J58B17			339A	70U5
2038S	J135B5					339B	70U10
2085	J58B17					339D	70U20
						339F	70U30
						339H	70U40
						339K	70U50
						339M	70U60

\*TYPES SHOWN ARE THE NEAREST I.R. EQUIVALENT. IN MANY CASES THE CROSS-REFERENCED ITEM IS COMPLETELY INTERCHANGEABLE. CERTAIN PRODUCTS, HOWEVER DIFFER IN SIZE, ELECTRICAL PARAMETERS AND

MANUFACTURING METHODS. FOR THIS REASON I.R. DOES NOT GUARANTEE THAT THE CROSS-REFERENCED ITEMS WILL IN ALL CASES SERVE AS AN EXACT REPLACEMENT.

For Industrial, JEDEC numbers ([IN Series]) refer to inside back cover.



### "5A" SERIES SILICON RECTIFIERS

#### The Universal, All-Circuit High Power Silicon Rectifier

High Current — to 1000 ma  
High Surge to 50 Amps/Higher Reliability

The Universal combines high power capability (to 1000 ma) and peak surge current capacity to 50 amps (about 10 times standard units) in a rugged miniaturized package. It will replace virtually any rectifier, selenium or silicon, in all circuits drawing up to 1000 ma dc, including TV, radio, hi-fi systems, filament supplies and motor control. Type 5A4D is recommended for radio, TV and other systems not equipped with a power transformer. For color TV, citizens band radios and similar systems equipped with transformer, the Type 5A6D is recommended.

Cat. No.	Packaging	Distrib. Std. Pack	Dealer Net
5A4-D	10 per Box	Multiples of 10 pc.	.72 ea.*
5A4-91	Indiv. Boxed	10	.77 ea.
5A4-95	Plastic Kit, cont. 5	5 kits	3.85 per kit
5A6-D	10 per Box	Multiples of 10 pc.	1.00 ea.

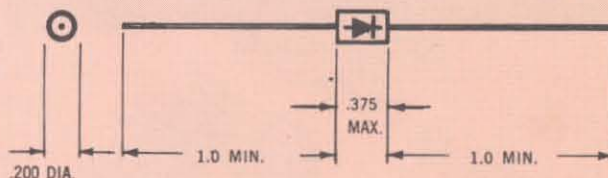
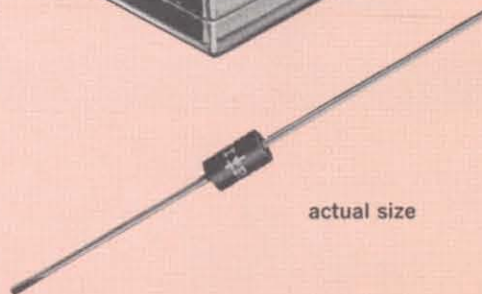
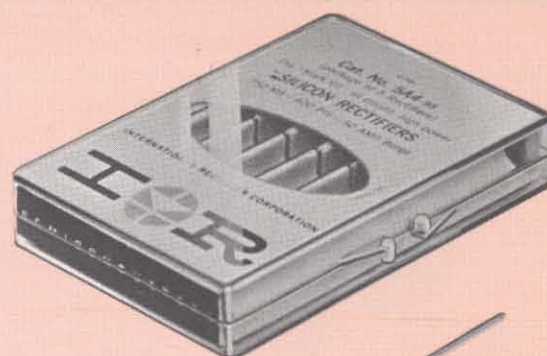
\*In lots of 10

#### RATINGS @ 40°C

Type No.	Peak Reverse Voltage	RMS Input Volts**	DC Output Current, ma	Max. Surge Current, Amps
5A4-D	400	140	1000	50
5A6-D	600	210	1000	50

For industrial high reliability types and lower and higher rated devices in this series, see Industrial section.

\*\*Capacitive load



### NEW "10D" SERIES SILICON RECTIFIERS

#### Sub Miniature — All-Circuit

Full Rated 1,000 ma @ 50°C subminiature silicon rectifiers. Incorporate completely new diffusion and encapsulation techniques to provide higher current ratings for their size than any device in the field. Pure silver leads assure easy soldering and increased heat dissipation.

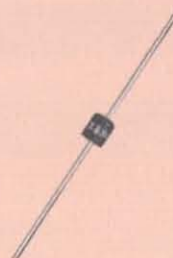
Cat. No.	Packaging	Distrib. Std. Pack	Dealer Net
10D4	10 per box	Multiples of 10 pc.	.87 ea.
10D6	10 per box	Multiples of 10 pc.	1.12 ea.

#### RATINGS @ 50°C

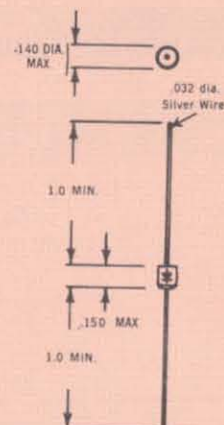
Type No.	Peak Reverse Voltage	RMS Input Volts**	DC Output Current, ma	Max. Surge Current, Amps
10D4	400	140	1000	50
10D6	600	210	1000	50

For industrial high reliability types and lower and higher rated devices in this series, see Industrial section.

\*\*Capacitive load



actual size





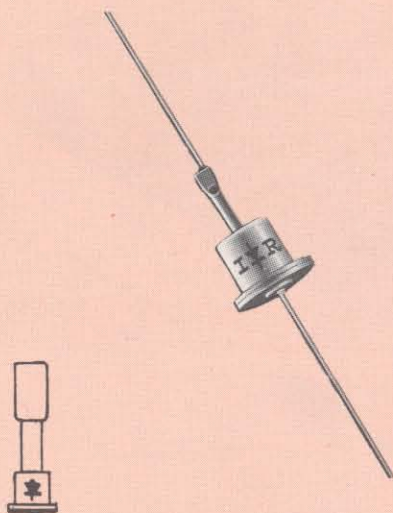
# RADIO-TV-AUDIO RECTIFIERS AND DIODES

INTERNATIONAL RECTIFIER 

## SD-500 SILICON "TOPHAT" RECTIFIER

... Quality standard of the industry! Hermetically sealed, easy to install: wires in or clips in

Cut your rectifier stock and cut your callbacks with the premium quality SD-500 kit ... the hermetically sealed replacement rectifier that is specifically designed for speedy installation in radio-TV, hi-fi, intercoms, phonographs, and other audio and control circuits. It WIRES IN ... to directly replace axial lead units or CLIPS IN ... a 10-second conversion permits plug-in into existing clip-type sockets (kit contains all needed parts). Where high humidity or other severe environmental conditions are encountered, the hermetically sealed SD-500 provides real protection, and long, dependable operation. **RATED @ 400 PIV, 750 MA resistive and 650 MA capacitive load on D.C. output.**



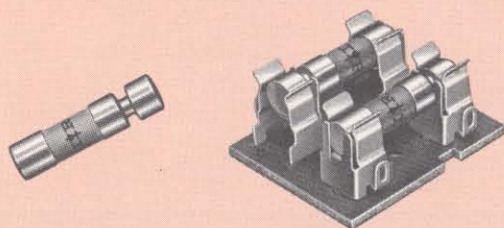
Cat. No.	Packaging	Distrib. Std. Pack	Dealer Net
SD500	10 per box	Multiples of 10 pcs.	.86 ea.*
SD500-91	Indiv. Boxed	10	.91 ea.
SD500-92	Kit of 2 Rectif. with Conv. Hdwe.	5 kits	1.95 per kit
SD500-95	Kit of 5 Rectif. with Conv. Hdwe.	5 kits	4.75 per kit

\*in lots of 10

## "PLUG IN" ALL-CIRCUIT SILICON RECTIFIER

Fast, easy insertion into clip-type sockets!

Ruggedized silicon diffused junction "plug-in" rectifiers may be rapidly snapped into radio-TV, motor control, audio-amplifier, industrial power supply and other circuits utilizing clip-type rectifier holders.



Cat. No.	Peak Reverse Voltage	RMS Input Volts	DC Output Ma. @ 50°C		Max. Surge Current, Amps
			Res.	Cap.	
1MA4	400	140	350	250	2
5MA4	400	140	850	750	50

For additional types in this series and listing of holders, see industrial section.

Cat. No.	Packaging	Distrib. Std. Pack	Dealer Net
1MA4-91	Indiv. Boxed	10	.90 ea.
1MA4	10 per box	Multiples of 10	.85 ea.*
1MA4K	Kit, includ. rectif. holder, hdwe. and resistor	5 kits	1.00 per kit
5MA4-91	Indiv. Boxed	10	1.25 ea.
5MA4	10 per box	Multiples of 10	1.20 ea *
5MA4-95	Plastic Box of 5	5 boxes	6.00 per bx.
5MA4K	Kit of 2 rect. with holder	5 kits	2.65 per kit

\*in lots of 10

## "LEMON DROP" LOW COST SILICON RECTIFIER

Combines economy with dependability

The 5E4 and 2E4 "Lemon Drops" are recommended for television, radio, tape recorders, phonographs and other applications where low rectifier cost, and dependable operation are called for. Rated at 450 ma dc output, the 5E4 "Lemon Drop" enables replacement of rectifiers in many TV sets, as well as radios and medium power amplifiers. The 2E4 "Lemon Drop" is rated at 250 ma and will provide high reliability in phonos, intercoms, tape recorders and similar low current electronic applications.

Cat. No.	Peak Reverse Voltage	RMS Input Volts	DC Output Ma. @ 50°C		Max. Surge Current, Amps
			Res.	Cap.	
2E4	400	140	350	250	2
5E4	400	140	650	450	5

Cat. No.	Packaging	Distrib. Std. Pack	Dealer Net
2E4-91	Indiv. boxed	10	.70 ea.
2E4	10 per box	Multiples of 10 pcs.	.68 ea.*
5E4-91	Indiv. boxed	10	.75 ea.
5E4	10 per box	Multiples of 10 pcs.	.72 ea.*
5E4-95	Plastic box of 5	5 boxes	3.75 per bx.

\*in lots of 10

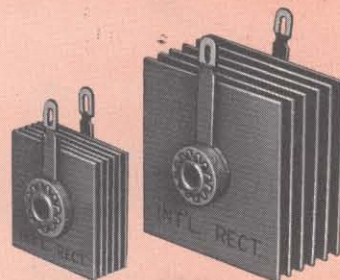


### SELENIUM RECTIFIER STACKS

#### Combine reliability with economy and small size

Compact, high density types designed for long life and reliability in radio, TV, record players, amplifiers and experimental applications. Output ratings from 50 ma to 650 ma at 130 volts RMS input. Economy, stable characteristics, and negligible leakage and aging of selenium provides long, economical rectifier operation. Replacement type rectifiers are individually boxed and are furnished with mounting bracket and hardware.

Cat. No.	DC Output Current, Ma	Max. RMS Volts	Dimensions, Nom. Plate Size (Inch)	Max. Mounting Dim. (Inch)	Distr. Std. Pack	Dealer Net	
						1-9	10 & up
T065/075	to 75	130	0.67 x 0.67	2-1/32	10	.59	.49
T075/150	75-150	130	1 x 1	3/4	10	.74	.62
T200/300	150-300	130	1.25 x 1.25	1-5/16	10	1.10	.92
T350/400	300-400	130	1.5 x 1.5	1-5/16	10	1.18	.99
T450/500	400-500	130	1.5 x 1.5	1-5/16	10	1.22	1.02
T550/650	500-650	130	2 x 2	2	10	2.08	1.73



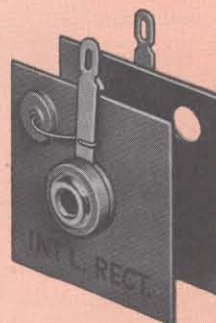
### SILICON "UNISTACS" TV 500, TV 502

#### For replacement of all Selenium TV Rectifiers with the Silicon "Unistac" TV-500 and the Silicon TV-502 (Doubler and Color TV Type)

Here are two silicon quality rectifiers designed for direct mechanical replacement of selenium stacks.

The "UNISTAC TV-500" is rated conservatively at 750 MA peak capacitive load and will replace practically any single selenium rectifier in TV sets. The "UNISTAC TV-502" is a dual unit for voltage doubler circuit application and for color TV replacement, and is rated at 750 MA at 800 PRV.

Cat. No.	Application	Distr. Std. Pack	Dealer Net
TV 500	Universal, 750 mil rectifier	10	1.86 ea.
TV 502	Dual rectifier for voltage doubler circuits and color TV e.g. RCA MODELS: 21CT-660U, 661U, 662U, 663U, CT-100, 21CT-55 Chassis CTC3, CTC3A, CTC2 RAYTHEON MODELS: C-21C1-B, -M, M-21C0-B, -M SYLVANIA MODELS: 31C606, 31T304M, Chassis 1-534-1, -2	10	3.30 ea.



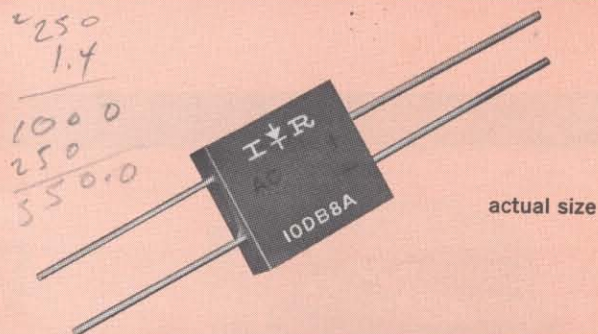
### EUROPEAN SET REPLACEMENT RECTIFIER

#### Single phase Bridge Universal Replacement Rectifier for European radios, Hi-Fi, TV, Amplifiers, Tape Recorders, Etc.

This rectifier serves as universal replacement for German, Dutch and other European electronic equipment using a bridge rectifier circuit. Rating is adequate for all sets and the small size permits installation even in the most compact equipment.

More efficient and longer lasting than presently used selenium rectifiers. Fits radios, tape recorders and other equipment made by such companies as Grundig, Telefunken, Mertz, Koerting, Blaupunkt, Phillips, Lowe-Opta and others.

Cat. No.	Rating	Distrib. Std. Pack	Dealer Net
10DB8A	250V RMS (800 PIV) input 1,250 ma DC output	12	3.60 ea.



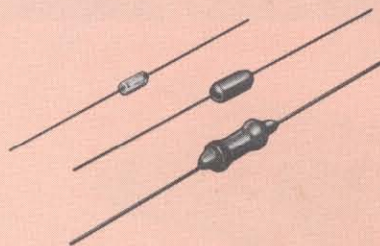
### GERMANIUM DIODES

#### Complete line for all entertainment and most industrial applications

Miniature, hermetically sealed construction assures optimum operation over a wide range of humidity, temperature and other environmental extremes.

Cat. No.	Max. DC Inverse Volts	Distrib. Std. Pack	Dealer Net
1N34A	60	10	.32 ea.
1N48	70	10	.33 ea.
1N60	40	10	.29 ea.
1N64	25	10	.30 ea.
1N67A	80	10	.40 ea.
1N82A	25	10	.91 ea.
1N87A	30	10	.35 ea.
1N294	70	10	.34 ea.
1N295	50	10	.27 ea.
1N541	45	10	.40 ea.
1N542*	—	10	.90 ea.
1N636	60	10	.38 ea.

\*This is matched pair of 2 1N541's

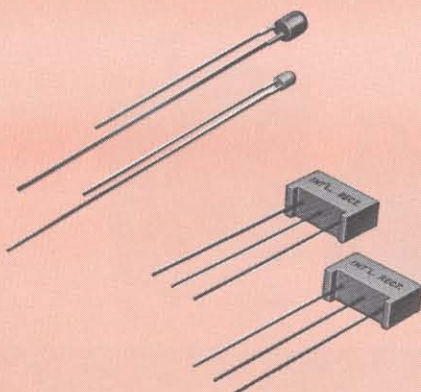




# RADIO-TV-AUDIO RECTIFIERS AND DIODES

INTERNATIONAL RECTIFIER 

## SELENIUM DIODES — DUAL DIODES



### DUAL DIODES

Cat. No.	Type	Equivalent to	Distrib. Std. Pack	Dir. Net
		GE IRC IT&T		
DD04	Com. Cathode	6GC1 D4 K1615	20	.49 ea.
DD05	Ser. Connect.	6GD1 D5 K1616	20	.49 ea.
DD06	Com. Anode	6GX1 D6 K1617	20	.49 ea.
DD07	Com. Anode	— D7 —	10	1.25 ea.

### SELENIUM DIODES

Cat. No.	RMS Input Volts, AC		DC Output Current, ma	PRV. Volts	Dir. Net
	Int'l Type	Res. Load Cap. Load			
1T1		33 20	0.5	48	.37
4U1		132 80	3.75	192	.48
1V1		33 20	12.5	48	.37
3Y1		99 60	28	144	.45

### Rugged, reliable, 100% tested

Selenium Diodes are used in TV and industrial devices where small size and high reliability is required. Dual diodes are for TV Phase Detector Circuits. These diodes are of superior quality and packaged for easy identification. Connecting diagram and complete interchangeability table is supplied with each unit.

### DUAL DIODE REPLACEMENT TABLE \*

Manufacturer	DD04	DD05
Admiral	93B5-6	93B5-4, 3, 5
Emerson	817074	817062 817962
General Electric	K115J510-1, 2 K117J460-1, 2 WT16X7	
Hallicrafters	27C226 027-300226	
Hoffman	10031 744002 744006	
Magnavox		530045-1, 2, 3
Motorola *	48C751656 48K741255	48B742698 48K742698 48K754153 65K744238

Manufacturer	DD04	DD05
Philco	34-8037, 2-3	
RCA *	109328	
Silvertone	D51	B46-110 D76 48-110 86-3-1
Sylvania	13-85943-1, 2 624-0006 624-0007	
Trav-Ler	SR13 66X21	SR-10 SR-15 SR-15
Westinghouse	296V004H01	
Zenith	103-20	633977

\*Type DD06 will replace Motorola Type 48K751724 and RCA Types 6GX1, 107268.  
Type DD07 will replace Motorola Type 48C65831A02.

## RECTIFIER & DIODE BENCH CABINET



### Serviceman's assortment of 31 most popular rectifiers and diodes

An outstanding value! A \$3.00 saving PLUS a permanent 4 drawer storage cabinet FREE! Contains 6 selenium stacks 65 to 500 mil — 8 germanium diodes — 2 dual diodes — 7 "5A" series All-circuit silicon rectifiers, and 4 plug-in types (400 and 600 PRV), Plug-in kit and Top Hat kit plus 2 "Lemon-Drop" silicon rectifiers.

### SPECIAL PRICING \*

Catalog No. K250 . . . \$24.95 Dir. Net

\* Price is based on merchandise of over \$27.00 Plus FREE \$3.50 cabinet.

## RECTIFIER REPLACEMENT CADDY KIT

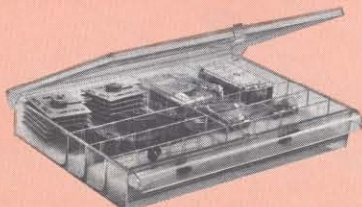
### Assortment of 16 rectifiers — 10 different types

Fits TV-Radio Servicemen's Tube Caddy. Durable, divided plastic box, contains 6 Selenium Stacks from 65 to 500 ma; 4 type "5A" Universal Silicon Rectifiers, plus 4 Plug-Ins, including Holder, plus 2 "Lemon Drops" and 2 Top-Hats.

### SPECIAL PRICING \*

Catalog No. K150 . . . \$14.95 Dir. Net

\* Price of rectifiers only is over \$17.50 plus \$1.25 Kit FREE. A saving of over 20%.





### **TUBE REPLACEMENT SILICON RECTIFIERS**

Used in broadcasting, two-way radio and mobile communications, power supplies, television and audio

The increased popularity of these devices is due to these outstanding advantages:

1. Practically unlimited life (assured dependability).
2. No aging characteristics (full output maintained during entire life span).
3. Instant warm-up.
4. No filament supply.
5. Much lower operating temperature.
6. Unbreakable, compact, rugged.
7. Lower impedance (better regulation).
8. Higher DC output (up to 3 times) on many types.

Cat. No.	Maximum Dimensions (Inches)		Replaces Tube Types	Net Price
	L	D		
ST-1	1.75	0.87	6X4, 6063, 6202	13.00
ST-1A			MIL 6X4, MIL 12X4, 5AW4	30.00
ST-2*	2.65	1.25	5AX4, AAZ4, 5AU4, 5W4	13.00
			5Y3, 5AU4, 5AW4, 5AZ4	
			5T4, 5U4, 5V4, 5W4, 5Z4	
			5931, 6087, 6106	
ST-2A	2.65	1.25	5R4	20.45
ST-3	2.65	1.25	0Z4, 5X4, 5Y4, 6AX5, 6X5	13.00
ST-4	2.65	1.25	80, 82, 83V, 5Z3	13.00
ST-5	1.75	0.87	6X5, 12X4 (high altitude types)	14.40
ST-6	2.45	1.19	84/6Z4	14.40
ST-7A	5.05	1.38	866, 866A, 3B28	28.25
ST-8	1.10	1.40	0Z4, 6X5	13.00
ST-9	8.03	2.13	8008	137.50
ST-10	8.18	2.31	872A	137.50
ST-13	2.65	0.87	12BW4, 6BW4	13.00
ST-14*	1.50	1.25	5AU4, 5AW4, 5AZ4, 5T4	5.95
			5U4, 5V4, 5W4, 5Y3, 5Z4	

\*ST-2 is rated at 750 MA. ST-14 is rated at 600 MA.

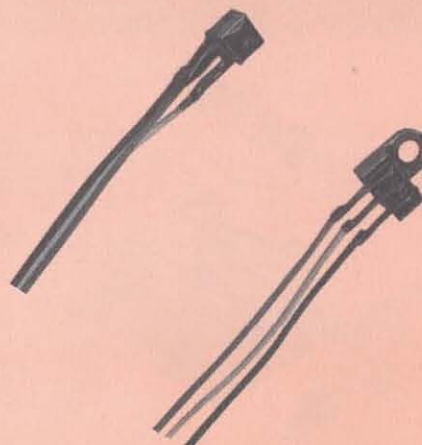


### **INSTRUMENT RECTIFIERS**

Replacement rectifiers for all types of meters

Copper-oxide miniature rectifiers to fit all replacement requirements for A.C. meters and multimeters. Very small in size. Temperature stabilized. Vinyl insulated.

Cat. No.	Replaces Conant Type	Circuit	Max. D.C. Output	Max. A.C. Input	Mtg.	Net Price
DD100	B/160	Bridge	12 MA	6V	#2 Screw	2.05
DD101	BHS/160	Doubler	12 MA	6V	#2 Screw	1.55
DD102	BC/160C	Bridge	12 MA	6V	Fuse Clip	2.05
DD103	BHS-C/160C	Doubler	12 MA	6V	Fuse Clip	1.55





# SILICON RECTIFIERS LOW POWER (TO 2 AMP.)

INTERNATIONAL RECTIFIER 

## SD & 10B "TOP HAT" SERIES

Cat. No.	Peak Reverse Voltage	RMS Input Voltage*	DC Output Current MA**	Max. Surge Amp	Net Price
SD-91	100	70	550	10	.59
SD-92	200	140	550	10	.68
SD-93	300	210	550	10	.86
SD-94	400	280	550	10	.96
SD-95	500	350	550	10	1.06
SD-96	600	420	550	10	1.16
10B2	200	140	1300	40	1.24
10B4	400	280	1300	40	2.46
10B6	600	420	1300	40	4.89

## ENCAPSULATED, FULLY INSULATED 5A SERIES

Cat. No.	Peak Reverse Voltage	RMS Input Voltage*	DC Output Current MA**	Max. Surge Amp	Net Price
5A2	200	140	1000	50	.73
5A4	400	280	1000	50	.87
5A5	500	350	1000	50	1.00
5A6	600	420	1000	50	1.12
5A8	800	560	1000	50	2.00
5A10	1000	700	1000	50	2.65

## MINIATURE ENCAPSULATED 10D SERIES

Cat. No.	Peak Reverse Voltage	RMS Input Voltage*	DC Output Current MA**	Max. Surge Amp	Net Price
10D2	200	140	1000	50	.73
10D3	300	210	1000	50	.80
10D4	400	280	1000	50	.87
10D6	600	420	1000	50	1.12
10D8	800	560	1000	50	2.65
10D10	1000	700	1000	50	3.25

## "PLUG-IN" 5MA SERIES

Cat. No.	Peak Reverse Voltage	RMS Input Voltage*	DC Output Current MA**	Max. Surge Amp	Net Price
5MA2	200	140	1000	50	.85
5MA4	400	280	1000	50	1.20
5MA5	500	350	1000	50	1.25
5MA6	600	420	1000	50	1.70
5MA8	800	560	1000	50	2.70
43-1803	SNAP-IN Holder only (single) 1/2" x 1 3/8"				.12
43-1804	SNAP-IN Holder only (dual) 1 3/8" x 1 7/8"				.25
43-1805	SNAP-IN Holder only (quadruple) 1 1/2" sq. (All are 1/8" high)				.90

\* For capacitive load use one-half of value shown. Figure indicated is for resistive and inductive loads.

\*\* Current rating shown is for resistive and inductive load at 50°C. For capacitive load use 80% of value.



## SILICON RECTIFIERS MEDIUM POWER (3-16 AMP)

3

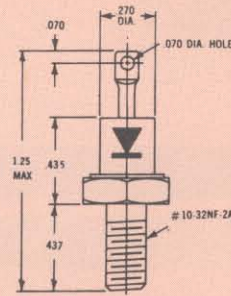
The hermetically sealed rectifiers on this page are conservatively rated, if mounted on a chassis or cooling fin of 3" x 3" x 1/8" (copper or aluminum). Transient voltages must not exceed the rated PRV

of the device selected. The use of transient voltage suppressors, such as Klip-Sels to limit the transient voltages is recommended.

### STUD MOUNTED 3 AMP SERIES

For commercial applications where temperature does not exceed 50° C (125° F)

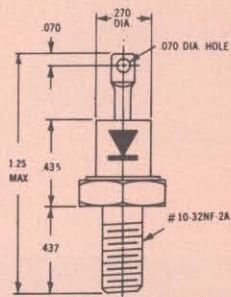
Cat. No.	Peak Reverse Voltage	RMS Input, Volt		DC Output Amps	Net Price
		Resist. Load	Cap. Load		
3F5-D	50	35	17	3	.66
3F10-D	100	70	35	3	.79
3F20-D	200	140	70	3	.93
3F30-D	300	210	105	3	1.27
3F40-D	400	280	140	3	1.59
3F50-D	500	350	175	3	2.50



### STUD MOUNTED 6 AMP SERIES

For commercial applications where temperature does not exceed 50° C. (125° F)

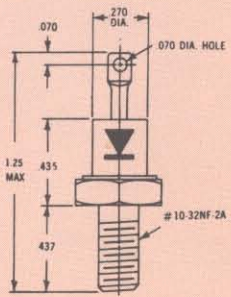
Cat. No.	Peak Reverse Voltage	RMS Input, Volt		DC Output Current Amps	Net Price
		Resist. Load	Cap. Load		
6F5-D	50	35	17	6	.99
6F10-D	100	70	35	6	1.25
6F20-D	200	140	70	6	1.45
6F30-D	300	210	105	6	1.85
6F40-D	400	280	140	6	2.61
6F50-D	500	350	175	6	4.28



### STUD MOUNTED 12 AMP SERIES

High reliability, industrial type

Cat. No.	Peak Reverse Voltage	RMS Input, Volt		DC Output Current Amps	Net Price
		Resist. Load	Cap. Load		
12F5	50	35	17	12	2.47
12F10	100	70	35	12	2.74
12F20	200	140	70	12	4.32
12F30	300	210	105	12	6.35
12F40	400	280	140	12	8.34
12F50	500	350	175	12	12.75
12F60	600	420	210	12	16.35

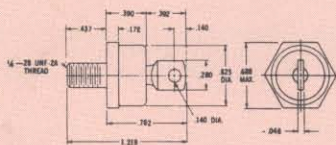




# SILICON RECTIFIERS HIGH POWER (25 through 250 Amp)

INTERNATIONAL RECTIFIER **IR**

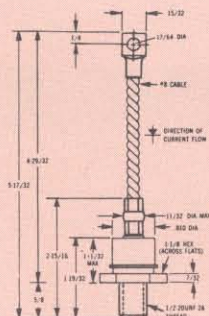
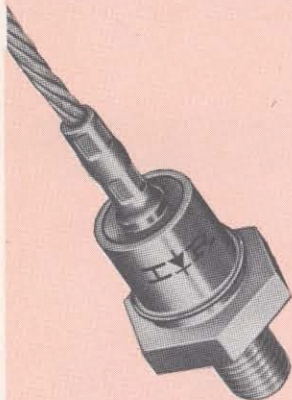
## STUD MOUNTED 25-35 AMP SERIES



Cat. No. IR	Peak Reverse Voltage	Max.* RMS Volts	DC Output Current, Amps	Net Price
25HB5	50	35	25	3.27
25HB10	100	70	to	3.85
25HB15	150	105	35	4.58
25HB20	200	140	Amps	5.25
25HB30	300	210	(dependent	6.35
25HB40	400	280	on type of	6.70
25HB50	500	350	cooling and	7.30
			heat sink	
			used)	

Write for Bulletin SR-310 for complete data.

## STUD MOUNTED 45-150 AMP SERIES





### **SILICON BRIDGE RECTIFIER ASSEMBLIES**

Pre-engineered and completely assembled single phase bridge rectifier stacks. The 1.8 amp series are miniature assemblies, completely insulated. All others are fin mounted assemblies. All diodes and rectifiers used are hermetically sealed to withstand extremes of temperature and humidity. Dual amp. ratings on B12 and B25 types are without and with fan cooling.

Cat. No.	Input RMS Volts	Output (DC)		Approx. Dim. (inch)	Net Price (1-9)
		Volt* Resistive	Amps @ 50°C		
10DB2A	95	84	1.8	$2\frac{1}{2} \times 1\frac{1}{2} \times \frac{1}{2}$	2.50
10DB4A	190	170	1.8	"	2.75
10DB6A	280	250	1.8	"	3.05
10DB8A	380	340	1.8	"	3.60
B12F5	14	9.5	14/30	3 x 3 $\frac{3}{4}$ x 2 $\frac{5}{8}$	7.70
B12F10	25	20	14/30	"	8.75
B12F20	60	43	14/30	"	14.72
B12F40	120	87	14/30	"	21.00
B25H5	14	9.5	18/42	3 x 3 $\frac{3}{4}$ x 2 $\frac{5}{8}$	11.35
B25H10	25	20	18/42	"	14.60
B25H20	60	43	18/42	"	20.57
B25H40	120	87	18/42	"	32.25

\*Into resistive or inductive load.



### **I.R. HANDBOOKS**

4 handbooks packed with a wealth of engineering information, basic theories, and applications

#### **Silicon Controlled Rectifier Handbook — Vol. I**

... Basic theory on understanding the principles and use of controlled rectifiers. Circuit data. 110 pages.

Cat. No. HB-40 Price \$2.50

#### **Solar Cell and Photocell Handbook**

This 112-page technical manual features full descriptions of over 75 practical light-operated circuits ... contains projects and demonstrations of both selenium photocells and silicon solar cells ... includes chapters on basic photovoltaic theory, photocell performance characteristics, radiation theory, and infrared and ultraviolet photocell applications ... contains data on silicon solar cells and their use on satellites and space vehicles.

Cat. No. HB-30 Price \$2.00

#### **Zener Diode Handbook**

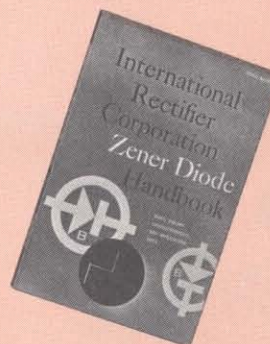
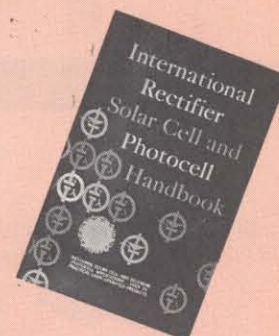
Zener Handbook contains over 100 pages of semiconductor theory, detailed and illustrated examinations of design considerations, thermal and operating characteristics, zener diode AC, DC, Audio, RF, computer, instrumentation, and circuit protection applications.

Cat. No. HB-20 Price \$2.00

#### **Rectifier Engineering Handbook**

Engineering Handbook contains 125 pages of practical rectifier engineering data. Includes chapters on first principles of semi-conductors, elimination of surge voltage breakdowns, design of fins for cooling semiconductors, and many more. A compendium of valuable information.

Cat. No. HB-10 Price \$2.00





## ZENER DIODES

The Zener diodes listed in this catalog are a "commercial version" of the JEDEC—military types. Their performance is comparable for practically all commercial application where environmental temperature extremes do not prevail. All devices listed are selected to plus and minus 10% tolerances. Five percent tolerance values are available on special order at an additional charge of 50c per unit.

Zener diodes are finding their way into almost every electronic application, as voltage regulators, reference elements, meter protectors, limiters, indicators, temperature sensors and control elements on such widely diverse

applications as instrumentation, computers, radio-TV transmitters and receivers, telephone, alarm and radar systems, electrical machinery, brake controls, typesetters, paper cutters, battery chargers, welders and electroplating.

Below is a cross reference from the old IR number to the new IR numbers:

1EZ5.6T10 — Z1104	1EZ18T10 — Z1116	10EZ10T10 — Z1310
1EZ6.8T10 — Z1106	1EZ22T10 — Z1118	10EZ12T10 — Z1312
1EZ8.2T10 — Z1108	1EZ27T10 — Z1120	10EZ15T12 — Z1314
1EZ10T10 — Z1110	10EZ5.6T10 — Z1304	10EZ18T10 — Z1316
1EZ12T10 — Z1112	10EZ6.8T10 — Z1306	10EZ22T10 — Z1318
1EZ15T10 — Z1114	10EZ8.2T10 — Z1308	10EZ27T10 — Z1320

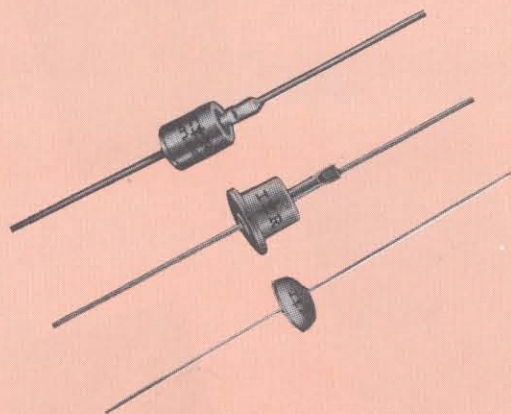
### 400 MW ZENER VOLTAGE REGULATORS



**NOTE** Illustrations shown are actual size. Either case type will be supplied, depending on availability.

Cat. No.	Nom. Voltage (EZ)	Test Current (IT) MA	Net Price	
			1-9	10-99
Z-1000	3.3	20	1.40	1.15
Z-1002	3.9	20	1.40	1.15
Z-1004	4.7	20	1.40	1.15
Z-1006	5.6	20	1.40	1.15
Z-1008	6.8	20	1.40	1.15
Z-1010	8.2	20	1.40	1.15
Z-1012	10.0	20	1.40	1.15
Z-1014	12.0	5	1.40	1.15
Z-1016	15.0	5	1.45	1.20
Z-1018	18.0	5	1.45	1.20
Z-1020	22	5	1.45	1.20
Z-1022	27	5	1.45	1.20

### 1 WATT ZENER VOLTAGE REGULATORS



**NOTE** Illustrations shown are actual size. One of 3 case types will be supplied, depending on availability.

Cat. No.	Nom. Voltage (EZ)	Test Current (IT) MA	Net Price	
			1-9	10-99
Z-1100	3.9	50	1.90	1.60
Z-1102	4.7	40	1.90	1.60
Z-1104	5.6	35	1.90	1.60
Z-1106	6.8	30	1.90	1.60
Z-1108	8.2	25	1.90	1.60
Z-1110	10	20	1.90	1.60
Z-1112	12	15	1.90	1.60
Z-1114	15	13	1.90	1.60
Z-1116	18	10	1.90	1.60
Z-1118	22	9	1.90	1.60
Z-1120	27	7	1.90	1.60
Z-1122	33	5	1.90	1.60
Z-1124	39	5	1.90	1.60
Z-1126	47	5	1.90	1.60
Z-1128	56	5	1.90	1.60
Z-1130	68	5	1.90	1.60
Z-1132	82	5	1.90	1.60
Z-1134	100	5	1.90	1.60
Z-1136	120	5	2.25	1.85
Z-1138	150	5	2.25	1.85
Z-1140	180	5	2.25	1.85



### 3 1/2 WATT ZENER VOLTAGE REGULATORS

Cat. No.	Nom. Voltage (EZ)	Test Current (IT) MA	Net Price	
			1-9	10-99
Z-1200	3.9	150	2.45	2.10
Z-1202	4.7	125	2.45	2.10
Z-1204	5.6	110	2.10	1.90
Z-1206	6.8	100	2.10	1.90
Z-1208	8.2	80	2.10	1.90
Z-1210	10	70	2.10	1.90
Z-1212	12	50	2.10	1.90
Z-1214	15	40	2.10	1.90
Z-1216	18	35	2.10	1.90
Z-1218	22	30	2.10	1.90
Z-1220	27	25	2.10	1.90



### 10 WATT ZENER VOLTAGE REGULATORS

Cat. No.	(EZ) Nom. Voltage	Test Current (IT) MA	Net Price	
			1-9	10-99
Z-1300	3.9	500	3.50	2.95
Z-1302	4.7	400	3.50	2.95
Z-1304	5.6	350	2.90	2.45
Z-1306	6.8	300	2.90	2.45
Z-1308	8.2	250	2.90	2.45
Z-1310	10.0	200	2.90	2.45
Z-1312	12	170	2.90	2.45
Z-1314	15	140	2.90	2.45
Z-1316	18	110	2.90	2.45
Z-1318	22	90	2.90	2.45
Z-1320	27	70	2.90	2.45
Z-1322	33	60	2.90	2.45
Z-1324	39	50	2.90	2.45
Z-1326	47	45	2.90	2.45
Z-1328	56	35	2.90	2.45
Z-1330	68	30	2.90	2.45
Z-1332	82	25	2.90	2.45
Z-1334	100	20	2.90	2.45
Z-1336	120	15	2.90	2.45
Z-1338	150	15	2.90	2.45
Z-1340	180	10	4.00	3.40



NOTE 1: Illustrations shown are actual size. Either case type will be supplied, depending on availability.

### ZENER DIODE EXPERIMENTER KIT

For schools, laboratories and experimenters

An assortment of twelve Zener diodes in voltage ranges from 3 to 30 volts and in various ratings from 3/4 thru 10 watt. Specially priced to promote the experimentation with Zener diodes in order to find new uses and as teaching aids in technical schools and universities. All diodes are marked with the voltage with 10% tolerance.

Catalog No. K546

Net \$6.50





# SELENIUM RECTIFIER STACKS

## CIRCUITS AND DIMENSIONS FOR ALL SELENIUM RECTIFIERS

Circuit and Connecting Diagrams

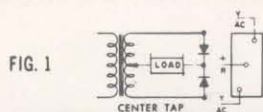
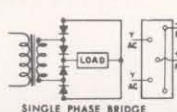


FIG. 2



Diagrams of Dimensions

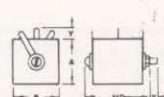


FIG. A

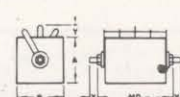
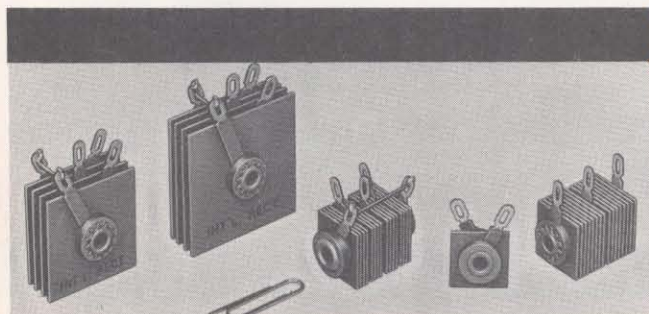


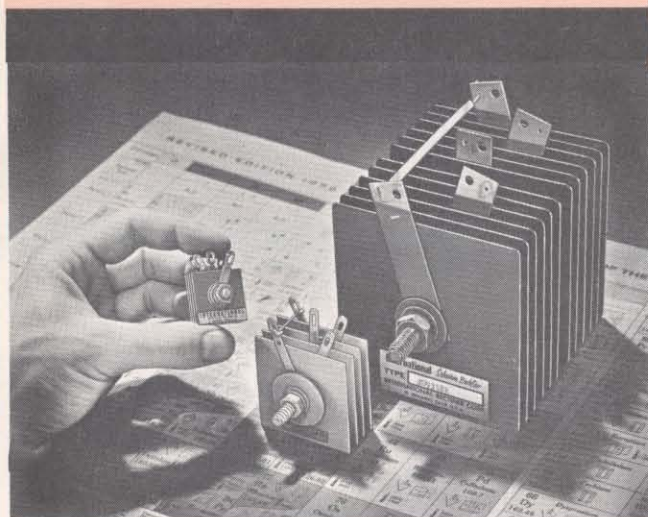
FIG. B



### MINIATURE BRIDGE RECTIFIERS

Cat. No.	Max. DC MA	Max. RMS Volts	Dimensions			Net Price
			A	B	Max. MD	
D3575F	100	130	2 1/4"	2 1/4"	1 1/4"	1.56
60-9150*	100	260	2 1/4"	2 1/4"	1 1/4"	1.56
61-4037	100	260	2 1/4"	2 1/4"	1 7/8"	3.10

\*60-9150 is a doubler stack. Ratings are for 2 stacks connected as a full wave bridge. Half wave and doubler ratings are one-half of those shown in rating table.



The "JD" series standard density stacks are available on special order. Following is a recommended substitution guide for these "JD" numbers to new "J" series listed

"JD" Number	Use J Number
JD-507G	J29B1
JD-508G	J29B1
JD-3022	J29B1
JD-510G	J29B5
JD-511P	J29B5
JD-515G	J58B1
JD-3023	J58B1
JD-517G	J58B5
JD-3012	J116B04
JD-3007	J116B1
JD-3008	J116B1

## ELECTRONIC RANGE SELENIUM RECTIFIERS

These half wave, full wave and miniature bridge rectifiers are designed for use in numerous electronic and instrumentation applications. They will provide stable voltage, occupy a minimum of space, are conservatively rated and easy to install.

### SINGLE PLATE HALF WAVE RECTIFIERS

Cat. No.	Max. DC MA	Max. RMS Volts	Min. Series Resistor Ohms	Dimensions			Net Price
				A	B	Max. MD	
Q1H	65	25	47	.67"	.67"	3/16"	.36
A1H	100	25	22	1"	1"	3/16"	.38
B1H	150	25	15	1.2"	1.2"	3/16"	.40
C1H	250	25	5	1.5"	1.5"	3/16"	.42
M1H	500	25	5	2"	2"	3/16"	.56

### FULL WAVE BRIDGE RECTIFIERS

Q1B	100	25	.67"	.67"	3/4"	.84
Q4B	100	130	.67"	.67"	1 1/4"	1.56
A1B	180	25	1"	1"	3/4"	1.22
B1B	300	25	1.2"	1.2"	3/4"	1.28
C1B	600	25	1.5"	1.5"	3/4"	1.46
M1B	1200	25	2"	2"	3/4"	1.72

## POWER RANGE SELENIUM RECTIFIERS

These new J Type "High Density Stack" rectifiers will deliver twice the output of standard selenium types on a wide range of rectifying applications, including power supplies and voltage regulation, plate voltages and filament supply, plating and electrolysis, battery charging, relays, circuit breakers and numerous communication systems.

Cat. No.	Output		Max. Input AC Volts	Circuit & Connecting Diag. Fig.	Dimensions (Inches)						Net Price
	Volts DC	Amp DC			Fig. A	B	MD	X	Y	Stud	
J14C04	0	0.4	36	1	A 1	1	1 1/8	1/8	1 3/4	8-32	.95
J14C1	to	1.5	36	1	A 1 1/2	1 1/2	1 1/8	3/8	1 3/4	8-32	1.39
J14C5	to	4.8	36	1	A 3	3	1 1/8	3/4	5/8	3/8-16	3.48
J14C8	to	8.4	36	1	A 4	4	1 7/8	3/4	1 1/8	3/8-16	4.89
J14C17	14	17.0	36	1	A 6	5	2 1/8	3/4	1 1/4	3/8-16	7.55
J29B04	0	0.4	36	2	A 1	1	1 1/2	3/8	1 3/4	8-32	1.57
J29B1	to	1.5	36	2	A 1 1/2	1 1/2	1 1/2	3/8	1 3/4	8-32	2.28
J29B5	to	4.8	36	2	A 3	3	2 5/8	3/4	5/8	3/8-16	6.43
J29B8	to	8.4	36	2	A 4	4	2 5/8	3/4	1 1/8	3/8-16	8.93
J29B17	29	17.0	36	2	A 6	5	3 1/4	3/4	1 1/4	3/8-16	13.27
J58B04	0	0.4	72	2	A 1	1	2 1/4	3/8	1 3/4	8-32	3.11
J58B1	to	1.5	72	2	A 1 1/2	1 1/2	2 1/4	3/8	1 3/4	8-32	4.49
J58B5	to	4.8	72	2	B 3	3	4 1/4	3/4	5/8	3/8-16	12.08
J58B8	to	8.4	72	2	B 4	4	4 1/4	3/4	1 1/8	3/8-16	16.75
J58B17	58	17.0	72	2	B 6	5	5 1/8	3/4	1 1/4	3/8-16	26.52
J116B04	0	0.4	144	2	B 1	1	3 1/4	3/8	1 3/4	8-32	5.56
J116B1	to	1.5	144	2	B 1 1/2	1 1/2	3 1/4	3/8	1 3/4	8-32	8.15
J116B5	to	4.8	144	2	B 3	3	7 1/4	3/4	5/8	3/8-16	22.91
J116B8	to	8.4	144	2	B 4	4	7 1/4	3/4	1 1/8	3/8-16	32.09
J116B17	116	17.0	144	2	B 6	5	10 1/4	3/4	1 1/4	3/8-16	50.45
J135B04	0	0.4	180	2	B 1	1	4 1/4	3/8	1 3/4	8-32	6.77
J135B1	to	1.5	180	2	B 1 1/2	1 1/2	4 1/4	3/8	1 3/4	8-32	9.93
J135B5	to	4.8	180	2	B 3	3	8 1/4	3/4	5/8	3/8-16	28.29
J135B8	to	8.4	180	2	B 4	4	8 1/4	3/4	1 1/8	3/8-16	39.71
J135B17	135	17.0	180	2	B 6	5	12 1/4	3/4	1 1/4	3/8-16	62.43

NOTE: FOR LISTING ON SELENIUM BATTERY CHARGING RECTIFIERS REFER TO "AUTOMOTIVE SECTION".



### SELENIUM AC AND DC CONTACT PROTECTORS

Make your circuits really secure against arcing, flashover and erosion across relay, switch and other component contacts with these low cost, high efficiency contact protectors. In specifying contact protectors, it is important that the maximum voltage rating of the protector exceeds the maximum value of the supply voltage. For additional data, write for Bulletin SR-150-A.

#### AC TYPES

Cat. No.	Dimension A (Max.)	Dimension B	Min-Max Voltage Range AC	Max. Coil Current (Amp)	Net Price
S1V1P	.380	.620	10 26	.25	.63
S5V5P	.380	.620	78 130	.20	1.00
S1Y1P	.500	.620	10 26	.40	.68
S5Y5P	.500	.620	78 130	.40	1.12
S1W1P	1.380	.620	10 26	1.2	1.73
S5W5P	1.380	.620	78 130	1.2	3.22
S6W6P	1.380	.990	130 156	1.2	3.56

Dim. A Case Diameter

Dim. B Case Length

#### DC TYPES

Cat. No.	Dimension A (Max.)	Dimension B	Voltage Range DC Min. Max.	Max. Coil Current (Amp)	Net Price
S1V1P	.380	.620	15 22	.25	.63
S2V1P	.380	.620	23 44	.25	.63
S3V2P	.380	.620	45 66	.25	.78
S4V2P	.380	.620	67 88	.25	.78
S5V2P	.380	.620	89 110	.25	.88
S6V2P	.380	.620	111 132	.25	.90
S7V2P	.380	.620	133 154	.25	.90
S1Y1P	.500	.620	15 22	.60	.68
S2Y1P	.500	.620	23 44	.60	.67
S3Y2P	.500	.620	45 66	.60	.80
S4Y2P	.500	.620	67 88	.60	.80
S5Y2P	.500	.620	89 110	.60	.97
S6Y2P	.500	.620	111 132	.60	.98
S7Y2P	.500	.620	133 154	.60	.98
S1W1P	1.380	.620	15 22	2.	1.73
S2W1P	1.380	.620	23 44	2.	1.88

### "KLIP-SEL" VOLTAGE SURGE PROTECTORS

Protects rectifiers and transistors from destructive transients

A new device to suppress voltage surges and transients often destructive to silicon rectifiers and transistors. The application of these Klip-Sels allows use of lower PIV rated devices. Types shown are non-polarized and are usually connected across the rectifier input. Booklet KL-601 and data sheet SR 155 give complete data, available at no charge.

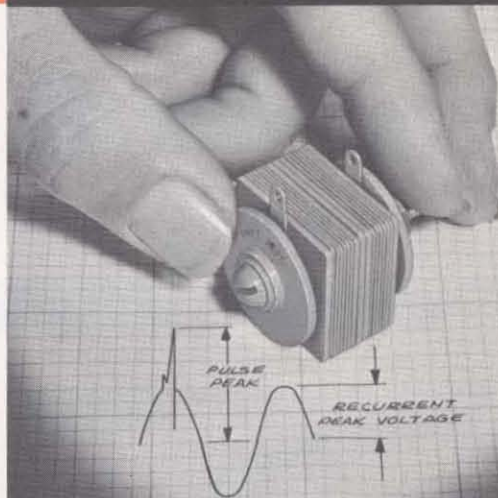
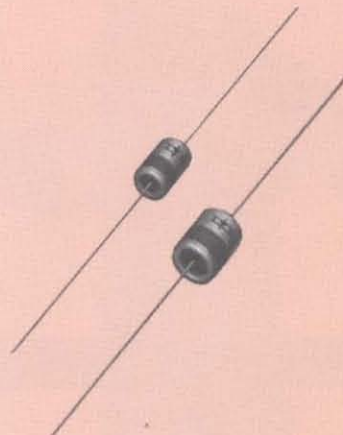
Cat. No.	RMS Oper. Volts Max.	Typical Clamp Volts (note 1)	Current at Clamp Volts (Amp PK)	Dimensions			Net Price
				H (in.)	L (in.) (±.063)	Stud Size	
KA1DAF	26	63	3.0	1 1/4	1.35	8-32	2.21
KA2DAF	52	125	3.0	1 1/4	1.45	8-32	2.46
KA5DAF	130	310	3.0	1 1/4	1.72	8-32	3.14
KA6DBF	156	375	3.0	1 1/4	1.82	8-32	3.31
KA8DBF	208	500	3.0	1 1/4	2.00	8-32	3.74
KA9DBF	234	565	3.0	1 1/4	2.00	8-32	4.00
KA10DBF	260	625	3.0	1 1/4	2.20	8-32	4.25
KL1DAF	26	63	15.0	2 5/8	1.55	1/4-20	5.52
KL2DAF	52	125	15.0	2 5/8	1.65	1/4-20	6.17
KL5DAF	130	310	15.0	2 5/8	1.92	1/4-20	7.87
KL6DBF	156	375	15.0	2 5/8	2.00	1/4-20	8.30
KL8DBF	208	500	15.0	2 5/8	2.20	1/4-20	9.35
KL10DBF	260	625	15.0	2 5/8	2.40	1/4-20	10.62

Note 1: PRV rating of rectifiers being protected must be greater than the clamping voltage to obtain optimum protection.

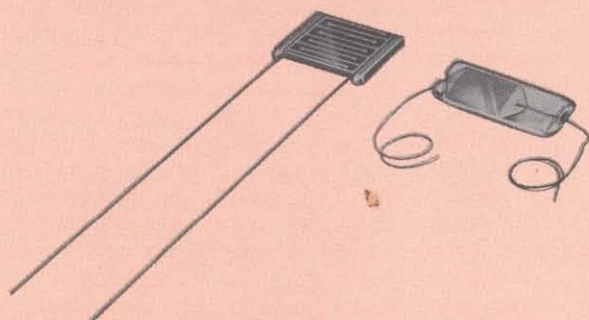
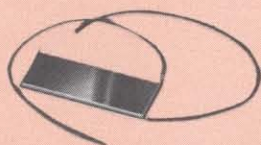
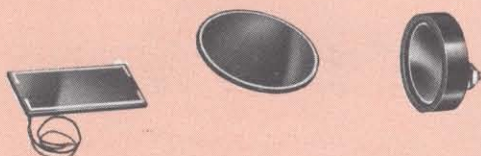
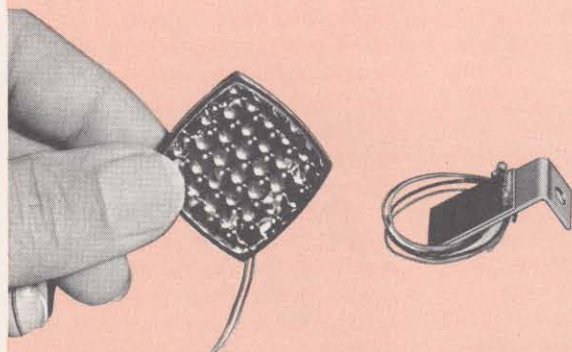
### SEMICAP VOLTAGE VARIABLE CAPACITOR

This voltage-sensitive device provides precision capacity control. "SEMICAPS" are useful in variable frequency oscillators, in AFC and modulation circuits, in band pass and filter network. They are small, sensitive devices with a Q of 1000 (plus) for #6.8 SC20 and about 100 for #100SC2 at 1 MC.

Cat. No.	Capacity Range	Frequency Range	Peak Signal Plus Bias Voltage Range	Net Price
6.8 SC20	3 to 30 UUF	1-500 MC	.1 to 200 V.D.C.	1.10
100 SC2	80 to 450 UUF	1-500 MC	.1 to 20 V.D.C.	2.75







## EXPERIMENTER TYPE CELLS

For the experimenter and hobbyist. A selected line, low priced — yet efficient, rugged and easy to mount and connect.

These cells and sun batteries may be used for powering of transistorized radios, building light meters, operating small motors from sunlight, etc. Selenium cells have a spectral response similar to the human eye, thus are used extensively in light meters. Silicon cells have higher light conversion efficiency. They are the same as used in satellites.

Cat. No.	Description and Size	OUTPUT*		Distrib. Std. Pack	Net Price
		Volts	MA.		
B2M	Selenium cell with mounting bracket. Cell size $1\frac{1}{2} \times 3\frac{1}{4}$ "	0.2 to 0.4	2	10	1.50
B3M	Selenium cell in molded case. $1\frac{1}{2} \times 1\frac{1}{2} \times 3\frac{1}{4}$ "	0.2 to 0.4	$1\frac{1}{2}$ — $2\frac{1}{2}$	10	1.75
S1M	Silicon cell in molded case. $1\frac{1}{2} \times 1\frac{1}{2} \times 3\frac{1}{4}$ "	0.3 to 0.4	10 — 16	10	2.25
S3M	Silicon cell contains 2 elements in series, therefore doubling voltage. Same size as S1M	0.6 to 0.85	10 — 16	3	3.95
S4M	Same as S1M but twice the current	0.3 to 0.4	25 — 40	6	3.95
S5M	Same as S3M but extra-high efficiency type	0.6 to 0.85	18 — 25	3	4.95

All cells supplied with pigtail leads.

\*In full sunlight, using conventional volt and milliamp meters.

## EXPERIMENTER'S MOTOR

PRECISION MOTOR with special anti-friction bearings designed for operation directly from the power supplied by solar cells. For fascinating experiments or "science projects." Operates from 0.35 to 1.5V. Recommended cell is type S4M (or two S1M in parallel).

Cat. No. EP 50 — Std. Pack 6

Net \$3.95

## INDUSTRIAL TYPE SELENIUM PHOTOCELLS

Self generating cells of outstanding stability and uniformity. Spectral response similar to human eye. Ideal for optical, photographic and industrial control applications.

Cat. No.	Description	Output*	Net Price
A5PL	Unmounted, $1\frac{1}{2}$ " round	250	2.40
A15PL	Unmounted, 2" round	770	6.20
ASM	In molded case, $1\frac{1}{4}$ " diam; 0.3" thick	220	6.65
A15M	In molded case, 2" diam; 0.3" thick	700	10.40
B10PL	Unmounted, 1.69 x 0.88"	380	2.90
B10M	In molded case, 2.2" x 1.1" x 0.4"	320	6.65

All "PL" type cells are supplied with 6" flexible leads. "M" Type cells have stud terminals.

\*In microamps @ 100 fc into 100 ohm load.

## INDUSTRIAL TYPE SILICON SOLAR CELLS

High-output satellite type cells for direct conversion of sunlight into electricity. Used for powering electronic devices and battery charging. Technical bulletin SR 280 free.

Cat. No.	Description	Output*		Net Price
		Volts	MA	
S 1020E4-PL	Unmounted, 0.4 x 0.8 (1X2cm)	0.40	18	1.95
S 1020E6-PL	Unmounted, 0.4 x 0.8 (1X2cm)	0.40	27	2.50
S 1020E8-PL	Unmounted, 0.4 x 0.8 (1X2cm)	0.40	36	3.85
SSM 1020E6	5 E-6 cells in series; mounted size $2\frac{1}{2} \times 7\frac{1}{8}$ "	1.85	29	13.20

\*In full sunlight, using conventional volt and milliamp meters.

## CADMIUM SULPHIDE PHOTO CONDUCTIVE CELLS

These cells do not generate electricity, but are "light-sensitive resistors." Used for operating relays, counting devices, door openers, turning on street lights, etc. Type CS-020-G8 is sealed in glass. Types CS-120-V6 and V16 are unmounted and will operate directly on 117 volt AC or DC. The type CS-120 cell is enclosed in a plastic case, same as shown under experimental cells on top of page. Most popular item.

Cat. No.	Approx. Size	Max. Applied Voltage	Max. Power Dissipation	Max. Resist (Ohms)			Net Price
				Dark	10 FC Illum.	100 FC Illum.	
CS-020-G8	$\frac{1}{2} \times 1 \times \frac{1}{8}$ "	20	50 MW	.5 Meg	5000	1000	4.50
CS-120-V6	$\frac{1}{2} \times \frac{3}{4} \times \frac{1}{8}$ "	120	.2 Watt	1.5 Meg	10,000	2000	1.95
CS-120	$1\frac{1}{8} \times 1\frac{1}{8} \times \frac{1}{8}$ "	120	.2 Watt	1.5 Meg	10,000	2000	2.35
CS-120-V16	$2 \times 1 \times \frac{1}{8}$ "	120	1 Watt	.5 Meg	5000	1000	3.50



## **SOLARPACKS** **SEMICONDUCTOR COOLERS** **SOLAR CELL KIT**

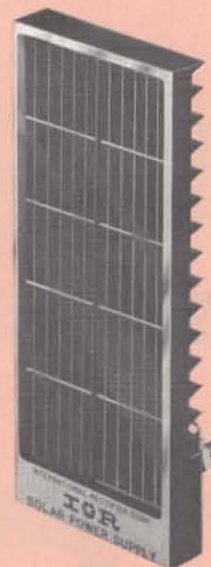
### **IR "SOLARPACKS"**

**Solar power supply for operation of electronic equipment or charging batteries directly from sunlight**

IR Solarpacks convert sunlight directly into electricity, using space satellite type silicon solar cells. IR Solarpacks are housed in anodized aluminum castings, with the active cell area encased in weather and heat resistant epoxy. Mounting hardware furnished permits fastening to walls or masts. Exposure angle is adjustable. Three corrosion resistant terminals are provided, two connecting directly to cells, the third to negative terminal through a blocking diode for use in battery charging (to prevent discharge of battery when cells are not illuminated). If higher voltages or greater current is required, than available from standard solarpacks, several units may be connected in series or parallel.

Cat. No.	Approx. Output*		Size (Except Term. Screws)	To charge these batteries	Net Prices	
	Volt	MA			1-9	10-99
SCP 100	3.5 to 4	60	5"x2"x1/2"	2 NiCd cells in series (2.5V) or one lead-acid cell (2.15V)	28.00	26.70
SCP 101	3.5 to 4	120	5"x4"x1/2"	" " "	55.00	52.40
SCP 105	7.5 to 8	30	5"x2"x1/2"	4 or 5 NiCd cells or 3 lead-acid cells (5 to 6V)	29.75	28.00
SCP 106	7.5 to 8	60	5"x4"x1/2"	" " "	57.50	54.00
SCP 108	15 - 16	30	5"x4"x1/2"	12V batteries	57.50	54.00

\*In bright sunlight. For complete technical specifications, request Bulletin SR-402



### **SOLAR & PHOTOCELL EXPERIMENTER'S KIT**

This solar and photocell kit contains various selenium, silicon and cadmium sulfide solid state photocells. An instruction manual with circuit diagrams and experiments, plus a small Hand Book is included. Designed for schools, experimenters, hobbyists.

Cat. No. K421

Net \$5.95

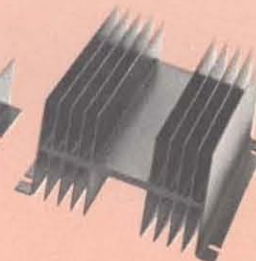
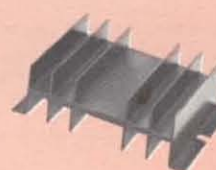


### **TRANSISTOR AND RECTIFIER COOLERS (HEAT SINKS)**

**Outstanding heat dissipation — easy to apply**

For use with natural or forced-air cooling. Type DD-120 fits all transistors with a diameter of .165 to .195" (eg. TO-18 case). Type DD-121 fits transistors or rectifiers with a diameter of .290 to .330" (eg. TO-5 case). For power transistors and medium power rectifiers, Type DD-125 is suggested. Type DD-126 is for larger units, including power S.C.R.'s. Type DD-125, 126 are supplied undrilled. Templates and insulating hardware is included.

Cat. No.	Max. O.D.	Length	Height	Depth	Cent. Fin Spacing	Net Price	
						1-9	10-99
DD-120	.680"	3/8"	—	—	—	.30	.24
DD-121	.740"	3/8"	—	—	—	.30	.24
DD-125	—	4 3/8"	3"	1 1/4"	1.3"	1.95	1.45
DD-126	—	4 3/8"	5 1/2"	2 3/8"	1.3"	3.95	3.30





## AUTOMOTIVE RECTIFIERS AND DIODES

INTERNATIONAL RECTIFIER **I R**<sup>®</sup>



### AUTOMOTIVE ALTERNATOR SILICON RECTIFIERS

Exact replacement for alternator rectifiers in all Chrysler Corporation cars — including the Imperial, Valiant, Plymouth and Dodge 1960, 1961, 1962 and 1963 model automobiles. Feature rapid, simple installation. Test circuit and mounting instructions are furnished in each rectifier package.

Cat. No.	Type	Replaces Mopar Types	Distrib. Std. Pack	Net Price	
				1-9	10-99
JJ1010	Case Neg.	2095502 & 2095332	10	1.60	1.35
JJ1020	Case Pos.	2095506 & 2095331	10	1.60	1.35

### TRANSISTORIZED IGNITION SYSTEM KIT

#### Kit of Zeners and Rectifier

You may now enjoy increased gas mileage, easier engine starting and longer point life by building your own transistorized ignition system. I.R. offers two essential components, as recommended in articles appearing in "Electronics World," December 1962 issue, and other publications. Two 30 volt Zener Diodes and one 25 Amp. Power Rectifier are contained in this kit.

Cat. No. K-199 Zener & Power Rect. Kit Net \$7.50

### SILICON BATTERY CHARGING RECTIFIERS

#### 100 Amp "Quad Sealed" universal type

This unit is designed as a replacement for the new types of fast chargers using silicon rectifiers. The BC101 consists of two silicon cells mounted on a 4" x 6" cooling fin, to make a complete unit for center tap circuit. The BC101 is rated at 100 amps, 6 or 12 volt, with fan cooling (750 L.F.M.). Rating using natural convection cooling is 40 amps.

Cat. No. BC101 Net Price \$15.00

### SELENIUM BATTERY CHARGER RECTIFIER

Type JD 4346B is the most universal rectifier for commercial "fast chargers" as used in service stations. It fits most models without circuit or mechanical modifications.

Single plate rectifiers are used for replacement of low-

current chargers such as used at home, as "trickle" type in garages and for constant current models. By using single plates of proper size, any current rating and circuit configuration (e.g. center tap, bridge, etc.) may be assembled.

Cat. No.	Output		Max. Input AC Volts	Circuit Connecting Diag. Fig.	Dimensions							Net Price
	DC Volt	DC Amp			Fig.	A	B	MD	X	Y	Stud	
JD4346B*	6-12	30-100**	16.5-0-16.5	1A	A	6	5	4 1/8	3/4	1 1/8	3/8-16	16.75
JD4346D	6-12	30-100**	16.5-0-16.5	1	A	6	5	4 1/8	3/4	1 1/8	3/8-16	16.75
JD116K	6-12	2 (Note A)	16.5-0-16.5	1 or 2	B	3	3	1/2	—	—	—	1.20
JD117K	6-12	3 (Note A)	16.5-0-16.5	1 or 2	B	4	4	1/2	—	—	—	1.80
JD241K	6-12	6 (Note A)	16.5-0-16.5	1 or 2	B	6	5	1/2	—	—	—	2.46
JD240K	6-12	9 (Note A)	16.5-0-16.5	1 or 2	B	7 1/2	6 1/2	1/2	—	—	—	3.40

\*Most popular type. \*\*30 without fan—100 with fan rated @ 800 LFM. Note A: Ratings shown for half wave. Two plates in center-tap circuit have twice this rating.

Circuit and Connecting Diagrams

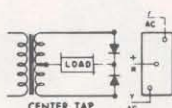


FIG. 1

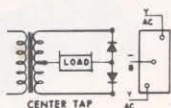


FIG. 1A

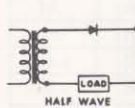


FIG. 2

Diagrams of Dimensions

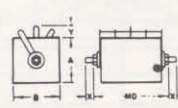


FIG. A

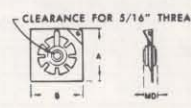


FIG. B



## SOLAR POWERED RADIO KITS

### MY-RADIO KIT

Fun while learning. Assembles in 1-2 hours.  
Uses patented solderless connectors

MY-RADIO is a 3 in 1 radio project kit. 1. Make a Crystal Set. 2. Assemble a transistor radio. 3. Have fun using sun power to operate the set. With this kit you duplicate simple radio circuits from the early crystal set to the modern transistor designs and into the future with sun power operation by a **genuine satellite type solar cell**. Clear step-by-step instructions, make this kit easy to assemble and enjoy. The instructions explain function of transistors, diodes, solar cells and other electronic components. Kit includes modern crystal diode, transistor, earphone, tuning condenser and many other parts, including beautiful molded plastic cabinet. Completely safe.  
Cat. No. EP30 List \$9.95



### SOLAR POWERED RADIO KITS

#### SOLAR POWERED RADIO KITS

Practical, satisfying projects that are authentic and reliable.

2 MODELS: Both featuring unbreakable plastic cases!

**Solar Powered Transistor-Speaker Radio Kit:** A powerful senior radio kit complete with Alnico V loudspeaker, rotary volume control, graduated tuning dial, solar cell, 2 transistors, germanium diode. Features built-in ferrite antenna, unique swivel mounting for solar cell, and switch for immediate conversion from solar to battery operation. Beautifully designed case, and once assembled, sure to be a constant companion of the Junior Engineer who built it.

Cat. No. EP-6

List \$19.95

**Solar Powered Personal Transistor Radio Kit:** A complete transistor radio kit containing solar cell, transistor, germanium diode and earphone. Lots of fun in constructing the solar powered transistor radio which performs outdoors or under artificial light. Features exclusive swivel mounting for solar cell. Complete with battery holder and built-in "Solar Power—Battery Power" switch so that the radio may be operated in darkness.

Cat. No. EP-5

List \$12.95





## BASIC ELECTRICITY AND SOLAR POWER KITS



## Basic Electricity and Solar Power Lab 1

This basic kit for the Junior Scientist provides a complete beginners course in basic electricity and the conversion of sunlight to electrical energy. Master control panel contains a "scope" with indicator lights, signal buzzer, galvanometer and push button switches. Builds a chemical battery, basic signal circuits, telegraph code practice circuits, etc. and demonstrates principles of light meters and automatic cameras. Sun battery included. Completely safe, no soldering, no special tools required. Complete with easy-to-follow instruction manual.

Cat. No. EP-10

List \$12.95



## Basic Electricity, Solar Power and Magnetism Lab 2

This intermediate's set performs over 30 experiments in electro-chemistry, magnetism, solar energy conversion, and even the building of an electric motor. Master control panel features "scope" with indicator lights, signal buzzer, galvanometer, push button switches; the lab includes a unique circuit board which allows assembly and reassembly of many circuits. Sun battery included as energy for light conversion experiments. Other projects work on battery cell. Completely safe, no solder, no special tools required. Complete with easy-to-follow instruction manual.

Cat. No. EP-11

List \$19.95

## PHOTO ELECTRIC AND SOLAR POWER KITS



## Photo Electric and Solar Power Lab 1

A basic kit designed to demonstrate photo electricity and solar energy and its conversion for use in basic electric circuitry. The master control panel is used to indicate audible or visual signals, controlled by light, temperature or moisture. Builds light-meters, rain detectors. "Wake-Up" alarms, light operated door alarms, TV "Commercial Killers," etc. Completely safe, no soldering, no special tools required. Complete with easy-to-follow instruction manual. Solar power will operate some experiments; battery power is optional on all experiments.

Cat. No. EP-15

List \$24.95



## Photo Electric and Solar Power Lab 2

Over 30 exciting solar power and photo energy experiments to be performed using professional components in this complete advanced lab. Master control panel indicates audible or visual signals, controlled by light, temperature or moisture. Features an electric motor which runs directly off the Solar Cell, and a Power Relay for remote control of electrical appliances. Completely safe, no soldering, no special tools required. Complete with easy-to-follow instruction manual. Solar power will operate many experiments; battery power optional on all experiments.

Cat. No. EP-16

List \$34.95



**TRANSISTOR ELECTRONICS AND SOLAR POWER KITS**

**Solar Energy and Transistor Electronics Lab 3**

The most complete electronics lab, affording advanced projects for Junior Electronics Experimentors. Builds over 70 different projects and experiments. This unit includes all of the exclusive features of the other International Electronics Labs, plus the components to build an amplifier, public address system, inter-com, telephone pickup, electronic timer, and many more circuits simulating those in missile guidance, computers, etc. Every component is of the professional quality used in commercial and industrial equipment. This advanced lab is as simple to assemble as the basic unit. Completely safe, no soldering, no special tools required. Complete with easy-to-follow instruction manual. Solar power will operate most experiments; battery power optional on all experiments.

Cat. No. EP-22

List \$39.95



**TRANSISTOR ELECTRONICS AND SOLAR POWER KITS**

**Solar Energy and Transistor Electronics Lab 2**

Over 50 basic and intermediate projects in this advanced kit! Features magnificent master control panel with buzzer, indicator, additional push button switches and scope, electronic circuit elements. Builds electronic light indicators, burglar and fire alarm systems, radios, transistorized broadcast transmitter. Completely safe, no soldering, no special tools required. Complete with easy-to-follow instruction manual. Solar power will operate most experiments; battery power optional on all experiments.

Cat. No. EP-21

List \$29.95



**TRANSISTOR ELECTRONICS AND SOLAR POWER KITS**

**Solar Energy and Transistor Electronics Lab 1**

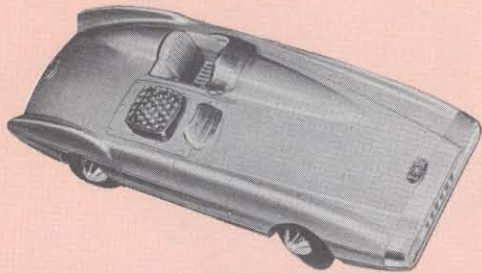
More than 30 fascinating projects are designed to acquaint the Junior Scientist with basic electronic circuitry. Master control panel features indicator scope, galvanometer, signal buzzer, and push button selector. Builds projects in electronic circuitry including two different radios, code practice set, sun operated "Wake Up" alarm, phone and telegraph broadcast transmitters. Completely safe, no soldering, no special tools required. Complete with easy-to-follow instruction manual. Solar power will operate most experiments; battery power optional on all experiments.

Cat. No. EP-20

List \$19.95





**LIGHTRONIC CAR KIT****Controlled by genuine satellite solar cell**

Start and stop, control speed by tracking with flashlight up to 10 or 15 feet away. "LIGHTRONIC CAR" KIT and 2 transistor electronic control circuit is easy to construct. No Glue. No Soldering. Completely safe. No prior experience with models or electronic assemblies required. Operates on 2 D cells (not included). Clear step-by-step instructions make this kit quick to assemble in 1 or 2 hours. Instructions explain function of transistors, solar cells and other electronic components.

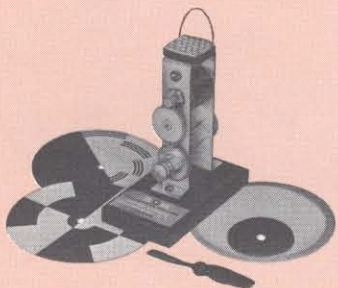
**Cat. No. EP40****List \$9.95****RADIO STATION F.U.N. KIT**

Transistorized home broadcaster transmits thru any nearby AM home radio. Play "Radio Announcer." Be a "Disc Jockey." Transmit Morse Code. A real miniature transmitter, completely safe, designed to meet Federal Communications Commission requirements — operates on 2 flashlight cells (not furnished). Patented solderless connections and clear step-by-step instructions make this kit easy to assemble and enjoy. No tools or previous experience required. The instructions explain functions of transistors, diodes, and other electronic components, and tell you how to get a radio amateur license. Kit includes handsome molded cabinet, 2 transistors and many other electronic components.

**Cat. No. EP32****List \$9.95****PHANTOM EYE KIT**

A completely safe transistorized photo electric control kit for many fun and practical uses. Genuine Satellite type Solar Cells activate a transistor circuit which operates when a light beam (e.g. flashlight) is interrupted, lights are turned on or off, when the sun rises or sets, etc. Makes a burglar alarm, a hidden "door sentry," a wake-up alarm, etc.

Patented solderless connections and clear step-by-step instructions make this kit easy to assemble and enjoy. The instructions explain functions of transistors, buzzers, solar cells and other electronic components. Completely safe. No prior electronic or wiring experience or tools required. Operates on 2 flashlight cells (not included).

**Cat. No. EP36****List \$9.95****SOLAR ENERGY CONVERSION KIT****Electric motor powered directly by a solar cell**

For interesting demonstration of solar energy at work and special do-it-yourself projects.

This basic solar "sun battery" energy conversion kit provides the most vivid demonstration of direct, immediate conversion of solar power into electrical energy. The International Rectifier satellite type Solar Cell produces approximately 1/2 volt and 50 milliamperes of electrical power, adequate to drive the motor contained in this kit. Included are reduction gears, pulley, and instructions for the construction of a solar powered fan, the powering of small models, and the building of unique school science projects.

**Cat. No. EP-1****List \$9.95**

**ACCESSORIES:** To add power to I-R science lab kits or for building special solar powered projects refer to photo-cell and solar cell section.



# INDUSTRIAL AND JEDEC CROSS REFERENCE

See bottom of page for notes and explanation

JeDEC No.	I.R. No.*	Notes	Page No.	JeDEC No.	I.R. No.*	Notes	Page No.	JeDEC No.	I.R. No.*	Notes	Page No.	JeDEC No.	I.R. No.*	Notes	Page No.
1N225	Z-1010	1 & 2	12	1N1367	Z-1326	2	13	1N1802	Z-1140	2 & 4	12	1N2071	5A6		8
1N226	Z-1012	1 & 2	12	1N1368	Z-1326	2	13	1N1805	Z-1306	2	13	1N2128	25HB5		10
1N227	Z-1014	1 & 2	12	1N1369	Z-1328	2	13	1N1806	Z-1306	2	13	1N2129	25HB10		10
1N228	Z-1016	1 & 2	12	1N1370	Z-1328	2	13	1N1807	Z-1308	2	13	1N2130	25HB20		10
1N229	Z-1018	1 & 2	12	1N1371	Z-1330	2	13	1N1808	Z-1308	2	13	1N2133	25HB30		10
1N230	Z-1020	1 & 2	12	1N1372	Z-1330	2	13	1N1809	Z-1336	2	13	1N2135	25HB40		10
1N231	Z-1022	1 & 2	12	1N1373	Z-1332	2	13	1N1810	Z-1336	2	13	1N2137	25HB50		10
1N466	Z-1000	1 & 2	12	1N1374	Z-1332	2	13	1N1811	Z-1336	2	13	1N2498	Z-1310	2	13
1N467	Z-1000	1 & 2	12	1N1375	Z-1334	2	13	1N1812	Z-1338	2	13	1N2499	Z-1310	2	13
1N468	Z-1002	1 & 2	12	1N1416	Z-1308	4	13	1N1813	Z-1338	2	13	1N2500	Z-1312	2	13
1N469	Z-1006	1 & 2	12	1N1417	Z-1312	4	13	1N1814	Z-1340	2	13	1N2630	ST1		7
1N470	Z-1008	1 & 2	12	1N1418	Z-1314	4	13	1N1815	Z-1340	2	13	1N2631	ST2		7
1N471	Z-1002	1 & 2	12	1N1419	Z-1316	4	13	1N1816	Z-1312	2	13	1N2632	ST2A		7
1N472	Z-1002	1 & 2	12	1N1420	Z-1318	4	13	1N1817	Z-1314	2	13	1N2633	ST3		7
1N473	Z-1004	1 & 2	12	1N1421	Z-1320	4	13	1N1818	Z-1314	2	13	1N2634	ST4		7
1N474	Z-1006	1 & 2	12	1N1422	Z-1330	4	13	1N1819	Z-1316	2	13	1N2635	ST5		7
1N475	Z-1008	1 & 2	12	1N1423	Z-1334	4	13	1N1820	Z-1316	2	13	1N2636	ST6		7
1N570	ST-1A		12	1N1424	Z-1338	2	13	1N1821	Z-1318	2	13	1N2790	Z-1108	2 & 4	12
1N701	Z-1012	2	12	1N1425	Z-1108	2 & 4	13	1N1822	Z-1318	2	13	1N2970	Z-1306	2	13
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1N970	Z-1020	2	12	1N1560	Z-1184	4	12	1N1922	Z-1202	2 & 4	12	1N3032	Z-1122	2 & 4	12
1N971	Z-1022	2	12	1N1561	Z-1186	4	12	1N1923	Z-1204	2 & 4	12	1N3033	Z-1122	2 & 4	12
1N972	Z-1022	2	12	1N1562	Z-1188	4	12	1N1924	Z-1206	2 & 4	12	1N3034	Z-1124	2 & 4	12
1N1084	5MA4	1 & 2	12												



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